

Effect Of Novel Unconstrained-Type Artificial Disc In Hybrid Cervical Surgery In Terms Of Adjacent Segment Degeneration And Motion Preservation

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Purpose

The purpose of this study is to compare the clinical and radiologic outcome of cervical hybrid surgery using conventional semi-constrained-type artificial disc and novel unconstrained-type artificial disc in patients with 2-level disc disease in terms of adjacent segment degeneration and motion preservation.

Material and methods

Between October 2013 and December 2014, 82 patients with 2 consecutive level cervical disc disease (CDD) between C3/4 and C6/7 underwent hybrid surgery were retrospectively reviewed. In study group (44 patients), novel unconstrained-type artificial disc (ROTAIO Cervical Disc Prosthesis; SIGNUS Medizintechnik GmbH, Alzenau, Germany) was inserted in ADR level and in control group (38 patients), conventional semi-constrained type was used.

Results

Although no significant differences in NDI scores existed between 2 groups postoperatively, study group experienced a trend towards better results at 12 and 24 months. Over 95% of patients in both group showed good to excellent results at the last visit and a significant reduction of analgesic usage was observed. The study group showed more rapid and greater C2-C7 ROM recovery compared to control group at the final follow-up. Compensatory ROM at the superior and inferior adjacent segment was less in study group during the follow-up periods.

Conclusion

The hybrid surgery may be a promising alternative to fusion surgery for CDD, but studies suggest still some degree of adjacent segment degeneration observed. In this study, hybrid surgery with novel unconstrained-type artificial disc demonstrated better neck pain improvement, C2-C7 ROM recovery and less impact at superior adjacent level compared to conventional semi-constrained-type.